



Early Journal Content on JSTOR, Free to Anyone in the World

This article is one of nearly 500,000 scholarly works digitized and made freely available to everyone in the world by JSTOR.

Known as the Early Journal Content, this set of works include research articles, news, letters, and other writings published in more than 200 of the oldest leading academic journals. The works date from the mid-seventeenth to the early twentieth centuries.

We encourage people to read and share the Early Journal Content openly and to tell others that this resource exists. People may post this content online or redistribute in any way for non-commercial purposes.

Read more about Early Journal Content at <http://about.jstor.org/participate-jstor/individuals/early-journal-content>.

JSTOR is a digital library of academic journals, books, and primary source objects. JSTOR helps people discover, use, and build upon a wide range of content through a powerful research and teaching platform, and preserves this content for future generations. JSTOR is part of ITHAKA, a not-for-profit organization that also includes Ithaka S+R and Portico. For more information about JSTOR, please contact support@jstor.org.

upon reëxamination, proves to be also hornblende. The writer proposes to call this type of rock, composed essentially of olivine and hornblende, "hudsonite," on account of its being so well developed at Stony point, on the Hudson river. [The name "hudsonite" was applied, as early as 1842, by Beck to a variety of augite occurring near Cornwall, on the Hudson river. It would therefore seem preferable, if a new name is considered necessary, to employ some other than that proposed by Cohen. The present writer has elsewhere suggested "cortlandtite" as appropriate, since this rock is such a typical member of Professor Dana's "Cortlandt Series."—*G. H. W.*]—Dr. K. Oebbeke,¹ of Munich, communicates some observations made by him on a specimen of andesite from the summit of Mt. Tacoma, Washington Territory. The question of the existence of pleochroic augite is again discussed and regarded as undecided in spite of the work of Cross, Hague and Iddings on the western hypersthene-andesites. If the matter is still in doubt it must be confessed that Oebbeke here furnishes but little convincing evidence in favor of a pleochroic monoclinic pyroxene.—R. D. M. Verbeek² makes some interesting remarks on the recent lavas of the East Indian archipelago. These are, for the most part, hypersthene-andesites, or, as this writer prefers to call them on account of the presence of both hypersthene and augite, "pyroxene-andesites." The hypersthene is almost always in excess of the augite. Pure augite andesites have not been observed, but such as contain only hypersthene rarely occur. The complementary rôles played by the hypersthene and olivine in these rocks was noticed by Verbeek independently of Hague and Iddings, who discovered and described the same in their notes on the hypersthene andesite and basalt of the Western U. S. in 1883.—Mr. G. P. Merrill,³ of the U. S. National Museum, has published some notes on the hornblende andesite from the new volcano on Bogosloff island, in Behring sea. They are quite normal in appearance, containing lath-shaped plagioclase crystals, brown hornblende and green augite imbedded in a microlitic base. Two varieties are distinguished, one light colored with fifty-six per cent of silica and the other much darker with fifty-one and a half per cent.

BOTANY.⁴

BOTANICAL WORK OF THE AMERICAN ASSOCIATION FOR THE ADVANCEMENT OF SCIENCE.—The Ann Arbor meeting of the association, just closed, proved of more than usual interest to the botanists. There was a notable increase in the permanent value of the papers. They were much more thoughtful, as a rule, than

¹ Neues Jahrbuch für Min., etc., 1885, I, p. 222.

² Neues Jahrbuch für Min., etc., 1885, I, p. 243.

³ Proceedings of the U. S. National Museum, Vol. VIII, 1885, p. 31.

⁴ Edited by PROFESSOR CHARLES E. BESSEY, Lincoln, Nebraska.

those presented at previous meetings, and came up more nearly to the standard demanded by the science of to-day. Below we give brief abstracts, which will show the general nature of the papers.

"An observation on the hybridization and cross-breeding of plants," by E. Lewis Sturtevant. This gave in detail the observations on crossed beans, maize, barley, peppers, tomatoes, lettuce and peas, made at the New York Agricultural Experiment Station. As a result of the observations the author concludes that in our domesticated vegetable plants cross-fertilization shows its effects at once in the reproduction of the form-species and varieties which are involved in the parentage of the crossed seed, or, in other words, the effect is *atavism* rather than a blending of properties.

"Germination studies," by the same author, gave the results of making numerous duplicate germinations, showing that different percentage-results are obtained as the quantity of seeds used is large or small. The influence of various temperatures was also discussed. These two papers will appear in the *NATURALIST*.

"The question of bisexuality in the pond-scums," by Charles E. Bessey. It has been held by some botanists that the pond-scums (*Zygnemaceæ*) show a distinct bisexuality, one of the filaments being male, the other female. Certain facts were presented which render such a view untenable. In many plants the cells of the same filament fertilize one another, as is notably the case in the forms which have been described as *Rhynchonema*. Several cases of hybridization were cited in which two filaments, both of which bore resting-spores, united with one another and produced a hybrid spore. The conclusion was that the pond-scums are not bisexual, but rather unisexual, that is, that while sexuality undoubtedly exists, there is as yet no differentiation into the proper male and female. Accordingly these plants must take a position just above the asexual prototypes, but below the clearly bisexual oöphytes.

"The process of fertilization in *Campanula americana*," by Charles R. Barnes. This species is strongly proterandrous. The pollen is scraped out of the anthers by the hairy style and brushed off before the stigmas open, thus securing cross-fertilization. The development of the pollen is normal. The stigmas are held together till mature by interlocking papillæ. The hairs on the style become partially introverted, thus freeing the pollen.

The pollen spore contains two nuclei, the larger of which, the vegetative, becomes disorganized shortly after entering the pollen tube, while the smaller spindle-shaped generative nucleus persists.

The embryo-sac is cylindrical, with a gradual enlargement near the micropylar end, where is located the egg-apparatus, and an abrupt enlargement at the chalazal end, in which lie the antipodal cells. There are usually two sac-nuclei.

The pollen-tubes enter the style *between* the bases of the papillæ of the stigma, pass down in the strands of conducting tissue, and *not* through the central canal, around which this tissue is arranged. The paper was followed by an account of the methods used, and illustrated by figures drawn upon a large chart.

"Proof that Bacteria are the direct cause of the disease in trees known as pear-blight," by J. C. Arthur. Cultures of the bacterium taken from blighted twigs were made in sterilized corn-meal juice. After a few days some of the bacteria, which had increased rapidly in this medium, were transferred (a drop only) to another sterilized preparation of corn-meal juice. After a few days another transfer was made, and this was continued until the sixth culture had been reached, when there was presumably but an infinitesimal amount of the original diseased juice present. Inoculations made with the bacteria of the last culture resulted in producing the blight as certainly and rapidly as in the first case.

The crucial experiment was made by filtering a watery solution containing the bacteria, and then inoculating with the bacteria on the one hand and the filtration on the other, resulting in blight in the former and none at all in the latter case.

"The mechanical injury to trees by cold," by T. J. Burrill. There are two kinds of mechanical injury due to a low temperature, viz: (1) The cracking and splitting of the bark and wood in a longitudinal-radial direction; and (2) the separation of the concentric layers of wood and bark, and especially the rupture of the cambium, thus destroying the bark and perhaps also killing the tree.

The first injury is due to the shrinking of the tissues by cold. The second is due to the growth of ice-crystals in the annual rings or on the surface of the wood.

"Further observations on the adventitious inflorescence of *Cuscuta glomerata*," by Charles E. Bessey. A further examination shows that it is the universal rule in this species for the inflorescence to develop from lateral adventitious buds, and that no normal inflorescence is developed. The adventitious inflorescence always bears a definite relation to the parasitic roots; that portion of the stem which bears roots produces adventitious inflorescence, and the greater the number of roots the greater the mass of inflorescence. No adventitious inflorescence is produced upon any portion of the stem which does not bear roots.

The stem proper (main axis) all dies away very soon, not only between the inflorescences but in the masses of inflorescence also. The flowering stems soon establish direct structural relations with the root, and thus with the host plant. Of other species thus far examined, *Cuscuta arvensis* does not produce adventitious inflorescence, while *C. chlorocarpa* and *C. gronovii* produce an abundance of both the normal and the adventitious flower

clusters, and in both cases the flowers, fruits and seeds appear to be well developed.

"On the appearance of the relation of ovary and perianth in the development of dicotyledons," by John M. Coulter. An examination of many species of dicotyledons (belonging to the orders Ranunculaceæ, Leguminosæ, Rosaceæ, Saxifragaceæ, Onagraceæ, Rubiaceæ, Umbelliferæ, Compositæ, Boraginaceæ, Scrophulariaceæ and Labiataæ) shows that in every case the first character recognized in the development of the flower is that of inferior or superior ovary, and that a most simple grouping of the orders upon that basis is possible. Grouping the dicotyledons upon this basis results somewhat as follows: The Compositæ take place at the head of the list, then near them come the Umbelliferæ, Rubiaceæ, etc., etc. The intermediate orders which have inferior and superior ovaries, as the Rosaceæ and Saxifragaceæ, would occupy a proper intermediate position, and finally those with superior ovary or ovaries only, as the Scrophulariaceæ, Labiataæ, Leguminosæ, etc., would be arrayed in a descending series.

"The development of the prothallium in ferns," by Douglass H. Campbell. The paper gave the details of many observations upon the development of the prothallia of ferns, accompanied by figures of the various stages.

"Notes upon some injurious Fungi of California," by William G. Farlow. The author observed *Peronospora hyoscyami* D.By. growing abundantly upon *Nicotiana glauca*, a shrubby plant, native of Buenos Ayres, which is now common in Northern Mexico and Southern California. As the shrub is a near relative of the cultivated tobacco, *Nicotiana tabacum*, there is danger that the parasite may be transferred from the former to the latter.

The hollyhocks of California are affected by a rust (*Puccinia* of some species) which was at first supposed to be identical with the hollyhock disease of Europe (*Puccinia malvacearum*). It is, however, entirely distinct, being the same species as that which occurs upon species of *Malvastrum* in some of the Western States. There is danger that this may become transferred to the cotton plant.

"A new chromogenous Bacillus," by D. E. Salmon and Thomas Smith. A Bacillus, named *B. luteus suis*, was found in the pericardial effusion of hogs affected with swine plague.

THE BOTANICAL CLUB OF THE A. A. A. S.—About seventy members of the association registered themselves as botanists at the Ann Arbor meeting. Every member of the club wore a yellow ribbon in addition to the regular association badge. Six sessions of the club were held in the university buildings, one of them occurring in the botanical laboratory.

During the first session a committee was appointed to take

into consideration the question of English names for the fungi and the diseases produced by them. The committee is composed of J. C. Arthur of Geneva, N. Y., Wm. G. Farlow, Cambridge, Mass., and Wm. Trelease of St. Louis, Mo., who are to act in conjunction with F. L. Scribner of Washington, D. C.

A committee was also appointed to take into consideration the relations of the botanists of the country to the National Herbarium at Washington. This committee, consisting of John M. Coulter of Crawfordsville, Ind., and Wm. J. Beal of Lansing, Mich., reported in favor of asking that the herbarium prepare a catalogue of its specimens and books so that the botanists may know what is to be found in it for consultation, and also in order that desiderata may be known to those who are able to supply them.

Professor Beal read a few notes upon laboratory methods. This was followed by discussion and a general interchange of notes.

Professor Halsted exhibited specimens of a wild grape from Iowa completely covered with *Peronospora viticola*. Near these specimens were many vines whose leaves were free from the parasite but whose *berries* were badly affected.

D. H. Campbell exhibited an organism from the Detroit river which he thought to be an alga. Other members doubted its vegetable nature. It was referred for further examination and study.

Professor Coulter presented a list, with comments, of the plants collected by the Greeley expedition.

Professor Barnes described the peculiar dehiscence of the fruit of *Campanula americana*, in which a peculiar little flap opens and lets the seeds out when the weather is dry, but closes when it is wet.

Professor Lazenby presented an additional list of plants new to the Ohio flora.

During the session in the botanical laboratory the whole time was given to the discussion of laboratory methods, and examination of various microscopes and of the laboratory books on the shelves in the room.

Professor Burrill called attention to the grape disease due to *Sphaceloma ampelina* D.By. Specimens were exhibited and passed around among the members of the club.

Mrs. Wolcott described an abnormal form of *Campanula* which had suddenly appeared in her garden, which provoked a discussion on weed seeds, in which it was suggested that many weeds survive in fields and meadows by the yearly growth of depauperate plants which, though small, produce perfect seeds.

Professor Barnes showed that the figures given in most books of the stomata of *Marchantia polymorpha* are erroneous in not

showing the guard cells, which lie at the bottom of the chimney-like structure.

F. L. Scribner gave some hints upon the making of drawings from botanical specimens.

Geo. U. Hays of St. Johns, N. B., sent a paper on the botanical features of New Brunswick, which was read by the secretary. The low temperature and damp air have affected the flora so that it is quite peculiar.

Professor Bessey described his herbarium cases which have doors which are readily removed entirely, and which he uses for tables by placing them upon trestles or flat backed chairs.

D. H. Campbell described the germination of *Botrychium* spores in so far as his observations had progressed. He succeeded in germinating the spores by constructing a box in such a way that the spores were under ground.

He also called attention to the crystals in the petiole of *Onoclea*.

J. C. Arthur exhibited specimens of Nepaul barley (*Hordeum trifurcatum*) in which the awns take a hood-like development, and in this hood additional flowers are found. The structure is very puzzling, as it appears that here a flowering glume (outer pale of the older books) bears flowers towards its upper extremity.

Dr. Walker, of New Orleans, mentioned a case of degeneracy of Indian corn. Kernels of Nebraska corn were planted in a pot in New Orleans, and produced perfect fruiting plants only fifteen inches in height.

The officers for the next meeting are John M. Coulter of Crawfordsville, Ind., chairman; J. C. Arthur of Geneva, N. Y., secretary.

The excursion on Monday afternoon to Tamarack swamp was very enjoyable, and to the younger botanists very profitable.

ENTOMOLOGY.

DR. BRAUER'S VIEWS ON THE CLASSIFICATION OF INSECTS.—In a work entitled "Systematisch-zoologische Studien," extracted from the ninety-first volume of the Proceedings of the Academy of Sciences at Vienna, Prof. Brauer, after a long introduction on evolution, makes many valuable and suggestive remarks on the following subjects: The insect orders now existing did not originate from one another but from ancestors closely allied to one another; affinities of Eugereon; the forms of insects the earliest and last to appear in different formations; hypothetical ancestral forms; no primitive forms connecting the existing orders of insects yet found; necessity of the dismemberment of some existing orders which are now mingled together; how the orders should be characterized; thoughts on the origin of the winged insects; division of insects into originally wingless, and secondarily winged or wingless forms; relations of the mouth-parts in larvæ and imagines or